

CLAIMS:

1. A combustion engine comprising:
 - an air intake;
 - an air compressor, coupled to the air intake;
 - 5 a combustion chamber, coupled to the air compressor;
 - a shuttle valve, placed between the air compressor and the combustion chamber, to seal off the combustion chamber from the air compressor during combustion;
 - 10 a fuel supplier, coupled to the air compressor and the combustion chamber, that delivers fuel to the air after intake to provide a fuel/air mixture that has been compressed within the combustion chamber;
 - a crank shaft, rotatably coupled to the air compressor, that operates the air compressor and to transfer power generated by the engine to a useful purpose;
 - 15 a turbine piston, coaxially coupled to the crank shaft, that travels in a circular path and is adjacent to the combustion chamber and serves to seal the combustion chamber during combustion of an air/fuel mixture and passes over the combustion chamber allowing the combustion chamber to open wherein the turbine piston is driven by a force generated by combustion of the fuel/air mixture within the combustion chamber as the combusted fuel/air mixture exits and is directed against the turbine piston to rotate the turbine piston and turn the crank shaft.
- 20 2. The combustion engine according to claim 1 wherein the air compressor is a reciprocating piston within a compression chamber that draws air through the air intake and compresses the air into the combustion chamber separate from the compression chamber.
3. The combustion engine according to claim 2 herein the fuel is injected into the compression chamber prior to compression.
- 25 4. The combustion engine according to claim 2 wherein the fuel is injected into the combustion chamber prior to combustion occurs.
5. The combustion engine according to claim 1 further comprising an ignitor within the combustion chamber to ignite the fuel/air mixture at a fixed time to combust the fuel/air mixture therein.
- 30 6. The combustion engine according to claim 5 wherein the ignitor is a spark plug having a spark end located within the combustion chamber.
7. A method of deriving power within a combustion engine having a turbine piston comprising the steps of:

- A intaking air;
- B compressing the intake air within a first compression chamber using a compression piston;
- C shuttling the compressed air to a first combustion chamber separate from the compression chamber;
- 5 D injecting fuel within the intake air;
- E sealing the first combustion chamber from the first compression chamber;
- F sealing the first combustion chamber with a portion of the turbine piston as it rotates about a piston head race adjacent the first combustion chamber;
- G igniting the compressed fuel/air mixture within the sealed first combustion chamber to combust the fuel/air mixture;
- H removing the turbine piston seal, allowing the combusted fuel/air gases to escape towards the turbine piston and impart its moment on the turbine piston increasing its rotation momentum;
- I repeating steps A-H thereby deriving power from the combustion events within the first combustion chamber.

8. The method according to claim 7 wherein the combustion engine operates as a two cycle engine.

9. The method according to claim 7 wherein a second compression chamber and second combustion chamber are located on an opposite side of the path of the turbine piston as compared to the first compression chamber and second combustion chamber such that steps A-H as performed by the second compression chamber and second combustion chamber operate 180 degrees out of phase of steps A-H as performed by the first compression chamber and the first combustion chamber resulting in two combustion events per revolution of the turbine piston.

25 10. The method according to claim 7 wherein the turbine piston is connected to a crank shaft, which is further coupled to the compression piston to perform the compression step further comprising the step of transferring power from the turbine piston to the crank shaft.

11. A combustion engine comprising:
an air intake;
30 an air compressor, coupled to the air intake;
a movable combustion chamber, coupled to the air compressor;
a shuttle valve, placed between the air compressor and the combustion chamber, to seal off the combustion chamber from the air compressor during combustion;

a fuel supplier, coupled to the air compressor and the combustion chamber, that delivers fuel to the air after intake to provide a fuel/air mixture that has been compressed within the combustion chamber;

5 a crank shaft, rotatably coupled to the air compressor, that operates the air compressor and to transfer power generated by the engine to a useful purpose;

10 a turbine piston, coaxially coupled to the crank shaft, that travels in a circular path and is adjacent to the combustion chamber and serves to seal the combustion chamber during combustion of an air/fuel mixture and passes over the combustion chamber allowing the combustion chamber to move and direct a release of the combusted air/fuel mixture to drive the turbine piston thereby rotating the turbine piston and turn the crank shaft, which converts the force of the combustion into mechanical energy.

12. The combustion engine according to claim 11 wherein the air compressor is a reciprocating piston within a compression chamber that draws air through the air intake and compresses the air into the combustion chamber separate from the compression chamber.

15 13. The combustion engine according to claim 12 herein the fuel is injected into the compression chamber prior to compression.

14. The combustion engine according to claim 12 wherein the fuel is injected into the combustion chamber prior to combustion occurs.

15. The combustion engine according to claim 11 further comprising an ignitor within the 20 combustion chamber to ignite the fuel/air mixture at a fixed time to combust the fuel/air mixture therein.

16. The combustion engine according to claim 15 wherein the ignitor is a spark plug having a spark end located within the combustion chamber.

17. The combustion engine according to claim 11 further comprising an intake shuttle valve 25 placed between the compression chamber and the air intake to seal the compression chamber from the air intake during compression of the air drawn in through the air intake.

18. The combustion engine according to claim 11 further comprising:
a second air intake;
a second air compressor, coupled to the second air intake;
30 a second combustion chamber, coupled to the second air compressor, the fuel supplier, and located opposite the combustion chamber;

a second shuttle valve, placed between the second air compressor and the second combustion chamber, to seal off the second combustion chamber from the second air compressor during combustion;

5 a second turbine piston, coaxially coupled to the crank shaft in tandem to the turbine piston and traveling in a circular path, the second turbine piston seals the second combustion chamber during combustion of an air/fuel mixture and passes over the second combustion chamber allowing the second combustion chamber to open wherein the second turbine piston is driven by a force generated by combustion of the fuel/air mixture within the second combustion chamber as the combusted fuel/air mixture exits and is directed against the second turbine piston 10 to rotate the second turbine piston and turn the crank shaft.

19. The combustion engine according to claim 11 further comprising a sweep turbine piston, coupled to the crank shaft and mounted diametrically opposed to the turbine piston to sweep out the spent combusted gases within the engine after the energy has been extracted there from.

20. The combustion engine according to claim 11 wherein the turbine piston is generally 15 wedge shaped with an inner surface having a radius of curvature generally equal to that of a lower path surface in which the turbine piston travels and an outer surface having a radius of curvature generally equal to that of an upper path surface in which the turbine piston travels.